

EARTH SCIENCE

TARGETED NH FRAMEWORKS FOR SCIENCE LITERACY

S:ESS2:8:1.4 Explain the temporal or positional relationships between or among the Earth, Sun and Moon (e.g., night/day, seasons, year, tide). [ESS2(5-8)SAE+POC-8]

S:ESS2:8:3.5 Explain how gravitational force affects objects in the Solar System [ESS2 (5-8) SAE+ POC -8]

S:SPS2:6-2.3 Estimate or predict the effect of making a change in one part of the system will have on other parts and on the system as a whole.

CHILD-FRIENDLY ESSENTIAL STANDARD(S)

I am able to demonstrate how the positions of the Earth, moon, and sun affect one another.

I am able to predict how changing a part of a system will affect other parts of the system or the whole system.

PRIOR KNOWLEDGE (Presented in previous grade levels)

- In 3rd grade, students:
 - Understand the Earth revolves around the sun and the moon revolves around the Earth
 - The Earth, moon, and sun are part of a solar system
 - The solar system is part of the universe
 - The sun gives the Earth energy
 - Light from the sun can be reflected and absorbed (Refracted not covered)
 - Earth's rotation causes day and night

- In 5th grade, students:
 - Convection currents in the mantle
 - Layers of the Earth
 - Core is iron
 - How mountains are formed because of plate boundaries
 - Divergent, Convergent and Transform boundaries

ESSENTIAL UNDERSTANDING(S)

Our universe is a system of interrelated parts that affect one another.

CONTENT/SKILLS DEVELOPED IN GRADE 6

- 1) All objects have mass and anything with mass has gravity
- 2) Gravitational pull always pulls toward the center of an object
- 3) Students will compare the sizes of the three celestial objects and explain how that impacts their respective amount of gravity
- 4) Students will demonstrate what causes the phases of the moon
- 5) Students will demonstrate and name the 8 major phase of the moon
- 6) Students explain how solar and lunar eclipses occur
- 7) Students understand why tides occur
- 8) Student can recognize what would happen if the Earth was not tilted on its axis
- 9) Students can express the relative positions of the Earth, moon, and sun at different times of the year
- 10) Students can express that the reason we always see the same side of the moon is because the rate of revolution and rotation are the same.

VOCABULARY

Prior Knowledge

Seasons
Rotation
Moon
Earth
Sun
Equator

Introduced

The 8 major Phases of the moon
Umbra
Penumbra

Mastered

Axis
Orbit
Revolution
Lunar eclipse
Solar eclipse
Vernal Equinox
Autumnal Equinox
Solstices
Neap Tide
Spring Tide
High Tide
Low Tide

